# Alpine Linux

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## Introduction

As an independent, non-commercial, general purpose Linux distribution, the advantages of Alpine Linux are **Small, Simple** and **Secure.**

Our internship mainly focused on the development of Alpine Linux's packages for PowerPC 64 little-endian architecture **(ppc64le)** architecture.

## Milestones

**Project Overview**
Assisted in patching packages for the ppc64le architecture on Alpine Linux.

**Goals and Milestones**
*Milestone 1:*
- Familiarize ourselves with packages from Alpine Linux via the *aports* repo.
- Set up the build environment on the remote server.
- Build up the *automake,* a small, simple and well-established package.

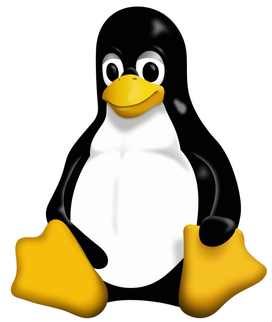
*Milestone 2:*
- Identify the specific packages of interest in the aports repo and try to debug those packages for Alpine Linux that have been flagged as not building.
- Review feedback requests from users.

*Final Goals:*
- Patch relevant packages that were previously blocked on ppc64le after dependent packages have been fixed.
- Work on a brief poster or presentation for the final week of the summer project.

## Highlights and Accomplishments

Enabled the following packages for ppc64le:
- Python3 (High-level scripting language)
- gc (Garbage collector for C/C++)
  - Merge request
- luajit (Just-In-Time Compiler for Lua)
  - Merge request
- lua-resty-core (New FFI-based API for lua-nginx-module)
  - Merge request

Satisfied dependency for:
- Snort
- Heplify
- Lua-resty-core
- py3-libmdbx
- py3-lmdb



## Commands

Various useful bash commands when searching, building, and patching packages:

1. *grep -l '!ppc64le' $(find . -type f -name "APKBUILD")*
Search the current directory for all files named 'APKBUILD' with the string '!ppc64le'.

*2. abuild clean; abuild cleancache; abuild cleanoldpkg; abuild cleanpkg; abuild checksum; abuild –r*
One-liner for building a given Alpine Linux package from scratch from an APKBUILD file.

## Learning Outcomes

Technical skills gained:
- Alpine Linux environment
- Various bash utilities
  - sed/grep/find (searching for disabled packages)
  - ssh + ssh-keygen (accessing remote machines)
- Git

## Future Work

- Continue to test and patch packages for ppc64le on Alpine Linux.
- Continue to submit patches for ppc64le to Alpine Linux *aports* repo.

## References

- Alpine Linux Wiki
- Alpine Linux Aports Repository
- ppc64le list of Disabled Packages
- Alpine Linux Wiki - Creating an Alpine package
- Generating a Public SSH Key
- Guide: Contributing to Alpine Linux

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